

NOTES ON PHALÆNIDÆ* FROM ARCTIC AMERICA,
SUPPLEMENTED WITH MATERIAL FROM
HIGH ALTITUDES

BY FOSTER H. BENJAMIN

*Bureau of Entomology,
United States Department of Agriculture*

The notes and descriptions in this paper are the result of identification of specimens submitted by Mr. J. R. Malloch for Mr. Owen Bryant.

Five generic and sixteen specific names are discussed, one specific name is placed in synonymy, four specific names are placed as representing subspecies, one specific name is removed from synonymy, and six new species and four new varieties are described, one of the latter representing a species not heretofore recorded from North America.

ALA PICTETI Staud.

1882, Staudinger, Stett. Ent. Zeit., p. 49, *Ala*.

A single specimen labeled "Siberia" is in the National Museum. The fore tibia bears two long spines near the distal end with another long spine a short distance above, and the outer side of the tibia is fringed with exceedingly long hair tending to droop over and hide the spines. The hind tibia possesses spines for its entire length. The palpus is relatively long, with more scales and less hair than that of *Archanarta*. The antennæ are strongly beaded instead of being serrate or lamellate. The eyes are reniform shaped and hairy. The fore wing has vein 7 shortly stalked with the stem of veins 8 and 9; the hind wing has veins 6 and 7 shortly stalked. The habitus is decidedly Heliothid. The genitalia indicate a very distinct offshoot of the *Anomogyna* series.

ARCHANARTA QUIETA Hbn.

1805?, Hübner, Schmett. Europ., Noct., f. 485, *Noctua*.

1929, Barnes & Benjamin, Bull. B'klyn Ent. Soc., XXIV, 173, *Archanarta*.

1932, McDunnough, Can. Ent., LXIV, 105, *Archanarta*.

Dr. McDunnough appears correct in his contention that *Archanarta* is related to *Anomogyna*.¹ This relationship includes

*Noctuidæ of Authors.

¹The eyes of *Barrovia* B. & McD., "*Psychorhophora*" *fasciata* Skin. only known species, are sparsely but distinctly hairy, this character usually obscured because of grease. Probably *Parabarrovia keelei* Gibson will also be found to have hairy eyes.

not only a genitalic affinity, but the possession of hair on the eyes, a character heretofore overlooked in the genus *Anomogyna*. While the hairs on the eyes of specimens belonging to the latter genus are relatively sparse, the individual hairs are long and can be discerned without difficulty. Many "agrotids" have obsolescent short hairs on the eyes.

From *Ala* Staudinger *Archanarta* is distinct not only by differences in all the structures of the genitalia, but by the shorter and more hairy palpi, the weaker spining on the hind tibiæ, and the habitus.

A pair of European specimens of *quieta*, those discussed by Barnes & Benjamin, have veins 8 and 9 of the fore wing the only stalked veins, vein 7 being from the discocellulars well below the accessory cell; the hind wing having veins 6 and 7 connate.

ARCHANARTA CONSTRICTA Wlk.

1857, Walker, Cat. Lep. Het. B. M., XI, 701, *Anarta*.

A single North American specimen from Herschel Island, Y. T., (Bryant) has vein 7 of the fore wing shortly stalked with the stem of veins 8 and 9; veins 6 and 7 of the hind wing shortly stalked. While these characters have usually been considered as generic by European entomologists they may not, in the present instance, be of specific significance.

The antennal serrations (almost lamellations) are very slightly heavier on the Bryant specimen than on the European male of *quieta*.

Slight differences exist between the genitalia of these two males, differences which might easily be individual.

Until additional specimens can be obtained for study, the name *constricta* may be resurrected for the North American form, and the name *quieta* restricted to the European.

Archanarta bryanti Benjamin, n. sp.

Similar in habitus to *A. quieta* and at first glance appearing to be a melanistic specimen of that species. The fore wing is smoky black powdered with grayish blue, the markings more or less obsolescent, their position as in *quieta*; the hind wing has a bluish white ground color which is almost obscured by fuscous. Beneath: bluish white, powdered with fuscous which marks the veins.

Easily distinguished from *quieta* and *constricta* by the lack of spines on the fore tibia, and by the simple ciliated antenna.

The present species is possibly worthy of generic separation, but the general habitus of the genitalia suggests a close affinity to *quieta*. From both *quieta* and *constricta* the genitalia differ by having the uncus somewhat more spatulate and with thinner neck, the vinculum broader basally, and the dorsal arm of the tip of the harpe shorter than the ventral arm, the latter character possibly only individual in this group. Expanse, 25 mm. *Type locality*: Aklavik, N. W. T. *Holotype*, male, July 28, 1931, Bryant lot 271, Cat. No. 44311, U.S.N.M.

Anomagyna mallochi Benjamin, n. sp.

Allied to *imperita* Hübner, with which it agrees in all color and pattern characters. The genitalia show no differences which can be considered specific, but the male antennæ are much more heavily serrate (or lamellate) than those of the Labrador to Rocky Mountain species. Expanse, 34-38 mm.

Type locality and number of sex types: *Holotype*, male, Aklavik, N. W. T., July 24, 1931; five male *Paratypes*, same data; three male *Paratypes*, Aklavik, July 15, 1931; all taken by Owen Bryant. Type and three paratypes in U.S.N.M., five paratypes returned to Mr. Malloch. Cat. No. 44312, U.S.N.M.

Anomagyna mallochi arufoides Benjamin, n. var.

Superficially appearing to be quite a distinct species, but probably only a melanistic form, as the antennæ and genitalia agree with those of *mallochi*.

Fore wing smoky, lacking all red tints, and possessing a broad black band suffusing the outer half of the medial area below the reniform to the transverse posterior line. Expanse, 37 mm.

Holotype male, Aklavik, N. W. T., July 24, 1931, (Owen Bryant). Cat. No. 44313, U.S.N.M.

Anomagyna mallochi stejnigeri Benjamin, n. subsp.

Possibly a distinct species, but the antennæ are so similar to those of *mallochi* that a subspecies is indicated.

Fore wing pale chocolate strongly suffused with purple; the lines and markings similar in shape to those of *imperita*; the transverse anterior line mesially marked by bright purple gray, the orbicular and reniform strongly suffused with purple, a conspicuous purple shading tending to fill the area between the transverse posterior line and the obsolescent subterminal shade. Hind wing with the pale ground heavily suffused with fuscous brown, especially distally and on the veins; with a faint discal dot and

a strong toothed median shade, in this latter character distinct from all closely allied forms. Expanse, 37 mm.

Type locality: Bering Island

Holotype, male, 20 Aug. '83, L. Stejneger, No. 2532. Cat. No. 44314, U.S.N.M.

ANOMOGYNA SPECIOSA Hbn.

The undersides of the male antennæ show lamellations. North American specimens seem to possess somewhat larger eyes, as an average, than European examples.

Anomogyna apropitia Benjamin, n. sp.

Male antennæ composed of beaded segments, neither serrate nor lamellate. Male eyes reduced in size, female eyes subreniform. Superficially the color and pattern are similar to those of *A. speciosa* form *arctica* Zett., but the wings are duller in tint, and the body is slighter in build than the *speciosa* forms. The genitalia are essentially of the *speciosa* pattern. Expanse, Male, 37 mm.; female, 43 mm.

Evidently much like the Asiatic *propitia* Püng., but the antinome of that species in so far as the antennæ are concerned.

Type locality: Banff, Alta.

Number and sexes of types: *Holotype*, male, *Allotype*, female (ex. Coll. Brooklyn Museum). Cat. No. 44315, U.S.N.M.

Anomogyna aklavicensis Benjamin, n. sp.

Male antennæ very slightly serrate; eyes subreniform; only a single weak spine was found on the inner side of the fore tibia. Markings essentially of the *speciosa* pattern; but the reniform is more erect and less constricted; the fore wing is dull brownish, more or less powdered with gray; the hind wing dull fuscous with obsolescent darker median and terminal shades and discal mark. The underside as in *speciosa* but dull, the markings obsolescent. Genitalia of the *speciosa* pattern. The exact shape of the harpe, clasper, and uncus seems to differ slightly from that of related species. Expanse, 35-38 mm.

Type locality: Aklavik, N. W. T.

Number and sex of types: *Holotype*, male, July 15, 1931; one male *paratype*, same date; one male *paratype*, July 24, 1931. Collected by Owen Bryant. Type and one *paratype* in U.S.N.M.; *Paratype* returned to Mr. Malloch. Cat. No. 44316, U.S.N.M.

ANOMOGYNA MUSTELINA Sm.

1900, Smith, Proc. U.S.N.M., XXII, 469, *Hadena*.
occidens Hamps.

1913, Hampson, Ann. Mag. Nat. Hist., (8), XII, 588, *Aplectoides*.

The Smith type is in the National Museum and is labeled "Santa Cruz Mts., Cal." Hampson described *occidens* from Sicamous, B. C. Some years ago, at the author's request, Mr. W. H. T. Tams compared a specimen from Wallace, Idaho, with the Hampson type.

ANARTA RICHARDSONI Curt.

1834, Curtis, Ross' Narr. Second Voy. N. W. Pass., app. LXXII, pl. A, f. 11, *Hadena*.
algida Lef.

1836, Lefebure, Ann. Soc. Ent. Fr., V, 395, pl. X, f. 5, *Anarta*.

No essential differences were found between the genitalia of several of the so-called species of the *richardsoni* group of *Anarta*. Slight individual differences in the exact shape of the claspers and the harpes indicate a variable species.

A male type of *richardsoni* is in the National Museum having descended through Doubleday, Guenée, Oberthür, and Barnes. Greenland specimens representing a manuscript Bang-Hass name are of the same form as the type of *richardsoni*. This is a form with the fore wing lacking all orange and most of the olive tints; the disc of the hind wing paper-white, occasionally soiled with fuscous. The only specimen of European *algida* in the Museum is a faded female. This example much resembles the type of *richardsoni*. For the present the normal European synonymy will have to stand.

ANARTA RICHARDSONI SEPTENTRIONIS Wlk.

1857, Walker, Cat. Lep. Het. B. M., XI, 700, *Anarta*.

This "species" was described from Repulse Bay. Mr. Tams has been unable to match the type which probably represents a local race of *richardsoni* from the vicinity of the Melville Peninsula.

ANARTA RICHARDSONI FEILDENI M'Lach.

1878, M'Lachlan, Jour. Linn. Soc., XIV, 112, ?*Mamestra*; p. 122, *richardsoni* var., *Anarta*.

1890, Aurivillius, Bih. K. S. Vet.-Akad. Handl., XV, 19, *richardsoni*, *Anarta*.

1905, Hampson, Cat. Lep. Phal. B. M., V, 611, (unrecognized), ?*Ala*.

1925, McDunnough, Can. Ent., LVII, 307, *richardsoni* var., *Anarta*.

Mr. Tams has examined the first specimen listed by Hampson (l.c., V, 40) under the name *richardsoni*, and concerning this example writes: "The type of *M. feildeni* was, as you say, entirely missed by Hampson, but I have carefully labeled its type myself."

The description indicates a local form related to *languinosa*.

ANARTA RICHARDSONI LANGUINOSA Sm.

1900, Smith, Proc. Wash. Acad. Sci., II, 492, *Anarta*.

This "species" was described from a male from Popoff Island, Alaska. The type, in the National Museum, represents a subspecies intermediate between the Arctic America to Greenland race (*richardsoni*) and the Labrador race (described herein), showing some orange powderings on the fore wing, but with the disc of the hind wing strongly yellowish tinted, not paper white. Three specimens from Aklavik, N. W. T. (Bryant) show the hind wings as in the type. The fore wing of one example matches that of the type; the fore wings of the other two examples tend to lose the orange scaling and the mossy appearance.

Anarta richardsoni tamsi Benjamin, n. subsp.

This is the Labrador race which is usually called *richardsoni* in collections. Both Smith and Bang-Haas appear to have considered this race a distinct species under the name of *richardsoni*. The superficial appearance is that of a distinct species. The fore wing is usually heavily marked with orange, or occasionally the orange may be replaced, wholly or in part, by strong mossy-green powderings. The disc of the hind wing is paper white, the broad black terminal band not so cleanly demarcated mesially as in *richardsoni* and *languinosa*. Expanse, Male and female, 27-35 mm.

Type localities and number and sexes of types: Holotype, male, Hopedale, July 24-31; *allotype*, female, Hopedale, July 8-15; 31 male, 24 female *paratypes*, Hopedale; 20 male, 14 female *paratypes*, Okak; 96 male, 103 female *paratypes*, Nain; 5 male, 4 female *paratypes*, Labrador; all from Labrador, various dates from the last week of June to the third week of August.

Described from 153 males and 146 females, with additional specimens in duplicate. Cat. No. 44317, U.S.N.M. All types

in U. S. National Museum excepting 3 male and 3 female paratypes received from Mr. Otto Buchholz for identification.

ANARTA RICHARDSONI SQUARA Sm.

1908, Smith, Ann. N. Y. Acad. Sci., XVIII (2), 112, *Anarta*.

Described from Greenland. The genitalia, from a cotype in the National Museum, are so like those of *richardsoni* that a variety of that species is indicated. Superficially the coloration and markings suggest the possibility of a valid species. The fore wing has a dull powdery appearance, with some orange scaling, and a disconcolorously darker median area; the hind wing has the disc luteous brown (possibly stained, presumably not).

ANARTA ETACTA Sm.

1900, Smith, Proc. Wash. Acad. Sci., II, 493, *Anarta*.

Judging from the unique female type in the National Museum, *etacta* belongs to the *richardsoni* group. The ground color of the hind wing is white, but much darkened with fuscous; the normal broad black distal band and the black discocellular spots are both absent. The fore wing has the ordinary markings strongly emphasized by white as in Hampson's figure (1905, Cat. Lep. Phal. B. M., V, pl. LXXXVI, f. 4), which otherwise is not good. A valid species is indicated.

ANARTA MAGNA B & Benj.

1924, Barnes and Benjamin, Contrib. Nat. Hist. Lep. N. Am., V, (3), 117, *Anarta*.

Only the two females cited in the original description are before the author. The species may be distinguished from its allies in the *richardsoni* group by the black bar connecting the discocellular spot with the wing base on the underside of the hind wing. This character is not duplicated in over three hundred specimens belonging to other species in the same group, although the type and paratype of *magna* were collected with a time interval of some twenty or thirty years. The holotype was collected at 13,000 feet altitude on Bullion Peak, Colo., by Mr. George P. Engelhardt; and the paratype, labeled "Colo. Bruce," probably came from the same locality.

Anarta preblei Benjamin, n. sp.

Belongs to the *leucocyclus* group, but superficially resembles a small *richardsoni*. Fore wing fuscous brown heavily powdered

with black, and with a suffusion of olive green and bluish white; basal and transverse anterior lines obscured by the black powdering; the orbicular mainly as a bluish white suffusion with blackish powderings; reniform small, similar to the orbicular but with noticeable black outlines; cell filled with black; claviform black, basally continued by two black bars, the interspace olive green; transverse posterior line black, produced to points on the veins, excurved around the cell, thence incurved; followed by a bluish white powdering; subterminal shade black, diffused; a strong black terminal line of dots extending onto and checkering the white fringe. Hind wing with the disc white, heavily powdered with black, which obscures the area from mesad of the strong black discal spot to the inner margin; an obsolescent powdery black thin medial line, the terminal third of the wing occupied by a powdery black band which is intensified into a terminal line; fringe white. Beneath: Fore wing bluish white powdered with black scales, with black discal spot, a black spot marking the transverse posterior line on the costa, and a subterminal blotchy line; terminal line and fringes as on upper side. Hind wing much as on upper side but with the bluish white disc more extended, the terminal band narrower and more suffused, and with a strong black bar connecting the discal spot with the base of the wing. Expanse, 27 mm.

Type locality: St. Paul Island, Bering Sea.

Holotype, male, summer 1914, E. A. Preble. Cat. No. 44318, U.S.N.M.

Apatela acla Benjamin, n. sp.

Wing shape and color of hind wings as in the female of European *myricæ* Gn.; related to *distans* Grt. and *impressa* Wlk. Eye small, practically reniform. Thorax and abdomen clothed with a mixture of black, white, and bluish scales, intermixed with hairs and hairlike scales. Fore wing with the ground color blue-gray, powdered and marked with rich jet black; the transverse anterior line indicated on the costa, lost in a black smudge extending from near the base of the cell, circling to the lower side of the black basal dash, thence through the submedian region to the inner margin and extending distad to about the middle of the submedian interspace; orbicular small, round, black-outlined, with a small black central dot; reniform strongly curved, black-filled save for a few blue-gray scales; transverse posterior line black, geminate, filled with the ground color, its course as in *impressa*; subterminal line pale blue-gray, distally marked by small black sagittate dashes; terminal line black, thin; fringe checkered black and white. Hind wing almost uniformly dull smoky; the fringe faintly checkered by brownish white. Underside nearly uniformly suffused with fuscous; the hind wing with some bluish powdering on the

disc and a black discal mark connected to the base of the wing by a black bar; fringes as on the upper side. Expanse, 32 mm.

Type locality: Aklavik, N. W. T.

Holotype, female, July 1, 1931, (Owen Bryant). Cat. No. 44319, U.S.N.M.

AUTOGRAPHA (SYNGRAPHA) INTERROGATIONIS L.²

1758, Linnæus, Syst. Nat., ed. X, p. 513, *Phalæna Noctua*.

Two examples labeled "Groenland" ex Oberthür Collection superficially appear to be the form called *borealis* by Reuter, or are closely allied thereto.

Staudinger's description of *grönlandica* indicates a species with the silvery dentate but erect lines of the *u-aureum* group. Aurivillius' figure and synonymy are probably correct. (1890, Bihang K. Vet.-Akad. Handl., XV, Afd. IV, No. 1, p. 16, pl. I, f. 7).

Hampson's figure of "*groenlandica*" (Cat. Lep. Phal. B. M., XIII, pl. CCXXXVI, f. 23) is based on a specimen from Iceland, and much resembles the form of *interrogationis* labeled "Groenland" in the National Museum, differing mainly in the shape of the stigma and the coloration of the base of the hind wing.

A series of specimens from Finland, Scandinavia, Iceland, and Greenland will be necessary to solve this riddle. The genitalia of specimens of *interrogationis* from central Europe are much like Pierce's figure (1909, Genit. Noct., pl. XXIX); but the clavus of the Greenland form is somewhat more lobate and less elongate. Minor differences, which probably are not constant, exist in the exact shapes of the harpes. Lack of material from Finland and Scandinavia prohibits checking on these characters.

Autographa interrogationis herschelensis Benjamin, n. subsp.

Superficially differs from *interrogationis* (from central Europe) by having the fore wing suffused with purplish blue-gray. The reniform is elongate and narrow, so constricted as to appear almost an elongate figure 8. The U-shaped stigma is tailless, but distally there is a small silver dot not on a line with the bottom of the "U," but opposite the center of this mark. The genitalia have the clavus similar to that structure in the Greenland specimens. Slight differences exist in the exact shape of the harpe,

² No other North American records for this species or any of its varieties are known to the author.

and in the clasper, which bears an additional disto-central point in the present form.³

The present subspecies must be similar to *transbaikalensis* Staudinger (1892, Iris, V, 371) from south-central and south-eastern Siberia, but the hind wings of the North American form are not noticeably different from those of specimens from Europe, the fore wings possess the disconcolorous medial areas, and the shape of the stigmæ appears different. Expanse, 38 mm.

Type locality: Herschel Island, Y. T.

Holotype, male, July 18, 1930 (Owen Bryant). Cat. No. 44320, U.S.N.M.

INSECT NOTES

The following observations are from the files of the State Department of Agriculture:

Paraneura simulella Dietz. This Tineid, which superficially resembles the Cœcophorid, *Borkhausenia pseudospretella* Staint, has been reared from Tulip Bulbs. The moth itself is not uncommon in California.

Homœosoma electellum Hulst. What Heinrich thinks may be variety *opalescella* Rag., appeared in quantity throughout the lower Sacramento Valley in 1932. Larvæ were quite injurious to sunflower heads in several localities. Previous to 1932 no individuals could be easily found.

Andrena flavoclypeata Sm. We have had this bee submitted a number of times from Sacramento lawns. The adults are active in March and may be very locally numerous, piling up many small mounds of earth throughout the grass.—H. H. Keifer, Department of Agriculture, Sacramento, California.

³ The two latter characters may have little or no significance. They are noted because they exist in the unique type.